

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  
Honolulu, Hawaii 96813

ADDENDUM NO. 1

TO

JOB NO. J32CO30A  
WAIMANALO WASTEWATER TREATMENT PLANT IMPROVEMENTS  
Waimanalo, Oahu, Hawaii

TAX MAP KEY: 4-1-09: 270

ISSUED: April 27, 2005

NOTICE TO ALL PROSPECTIVE BIDDERS

The items listed hereinafter are hereby made a part of the contract for the above project and shall govern the work, taking precedence over previously issued plans and specifications governing the items mentioned:

ITEM NO. 1 - PROPOSAL

**REPLACE** the Proposal in its entirety with the attached Revised Proposal.

ITEM NO. 2 - SPECIAL PROVISIONS

1. Page SP-6, add third item to Section 8 - Measurement and Payment,
3. **DELETE** Section 8.5, Progress and/or Partial Payment, paragraph 3, first sentence, and replace with  
  
"The Contractor will also be allowed partial payments to the extent of one hundred percent (100%) of the invoice cost of approved materials to be incorporated in the work on the following conditions:"

ITEM NO. 3 - TECHNICAL SPECIFICATIONS

1. SECTION 01000 - GENERAL REQUIREMENTS
  - a. Page 01000-7, after paragraph 1.29 FINAL CLEANUP, **ADD** the following new paragraph:

"1.30 FIELD OFFICE

Contractor to provide a field office trailer with a minimum size of 10'X32' including theft mitigation window and lock armor, air conditioning, private

office, and toilet facilities. Establish and pay monthly cost of all field office utilities including: water, sewage, electric, two(2) phone lines with two(2) 2-way phones, broadband DSL or cable internet service, and weekly cleaning. Provide office furnishings including 2 desks and chairs, 3 - 4 drawer lockable legal file cabinets, 2- 6 ft bookshelves, 2- 6ft folding tables, and one conference table with 8 folding chairs."

2. SECTION 01014 - WORK SEQUENCE, PHASING AND COORDINATION

- a. Page 01014-2, paragraph 1.02(A), at the end of this paragraph **ADD** the following new paragraph:

"Construction work shall be completed in two phases to allow decommissioning of the existing rapid bloc system and start-up of new anoxic/aerobic system. Before commencing with construction, the Contractor shall meet with the plant operator and Engineer to coordinate his sequence of work. A detailed written phasing plan shall be prepared by the Contractor and submitted to the Engineer for review and approval. Work shall be sequenced such that the new secondary liquid stream is constructed before the DAFT solids handling system. Once all the liquid stream components are constructed, tested and accepted by the Engineer, wastewater shall be transferred from the primary clarifier and rapid bloc system to the new anoxic/aerobic tank and final clarifiers. After filling both units, the Contractor shall activate the return activated sludge (RAS) pumps to allow wastewater to circulate through the anoxic/aerobic tank and final clarifiers in a closed-loop configuration. It is estimated that approximately 3 to 5 months is needed to stabilize the new secondary system. Once the new secondary system is stabilized, plant flow may be diverted from the primary clarifier to the new system. The Contractor may then commence with the 4-day operational test on the new secondary liquid and solids system. Work on the existing rapid bloc tank (new equalization basin) may commence at the completion of the Phase I operational test. All cost incurred during this period (i.e. electricity, transfer pump rental, etc..) shall be borne by the Contractor."

- b. Page 01014-4, paragraph 1.02(B), after the word Phase II, **DELETE** the words "(After Pre-Final Acceptance)".

3. SECTION 01800 - PERMITS, APPROVALS AND LICENSES

- a. **DELETE** this section in its entirety and replace with the attached new Section 01800 - PERMITS, APPROVALS AND LICENSES

4. SECTION 02050 - DEMOLITION

- a. Page 02050-2, paragraph 3.01, at the end of this paragraph **ADD** the following new paragraph:

"UST Removal: Remove and dispose of existing underground fuel storage tank. See Section 02115 - Removal and Disposal of Underground Storage Tank."

- b. Page 02050-2, paragraph 3.02, first bullet item, **REPLACE** "(deliver to Sand Island WWTP)" with "(deliver to Kailua WWTP)"

5. SECTION 02221 - STRUCTURE EXCAVATION AND BACKFILL

- a. Page 02221-2, paragraph 3.01, first paragraph, **DELETE** this paragraph in its entirety and replace with:

"Base course under slabs on grade for building and other ground surface structures, shall be No. 3B Fine gravel. Base courses shall be placed on compacted subgrades. Compact as specified in Section 31 of the Standard Specifications."

6. SECTION 03200 - CONCRETE REINFORCEMENT

- a. Page 03200-4, paragraph 3.03, **DELETE** subparagraphs A and B and replace with the following new paragraphs:

"A. Reinforcing bars for all the concrete structures

ASTM A615, Grade 60 with, fusion bonded epoxy coating conforming to ASTM A934M-00b.

B. Wire Welded Fabric for all the concrete structures.

ASTM A185 with protective epoxy coating conforming to ASTM A884 / A884M-01."

7. SECTION 07550 - MODIFIED BITUMINOUS MEMBRANE

**ADD** the attached new Section 07550 in its entirety.

8. SECTION 07600 - FLASHING AND SHEET METAL

**ADD** the attached new Section 07600 in its entirety.

9. SECTION 11339 - FINAL CLARIFIER

- a. Page 11339-10, paragraph 2.02(H)(2)(b), Walkway and Operating Platform, **DELETE** wording "Section 13230 - FRP Grating, FRP Overlay Panels, FRP Plates and Stainless Steel Grading." And replace with "Section 06610 - Fiberglass Reinforced Plastic (FRP)."

10. SECTION 11362 - SLUDGE THICKENING EQUIPMENT

- a. Page 11362-10, **DELETE** paragraph 2.05(E), Flotation Baffle in its entirety.
- b. Page 11362-10, **DELETE** paragraph 2.06(A)&(B) in its entirety and replace with the following new paragraph:

"A submerged effluent launder shall be provided around the inside perimeter of the DAFT tank. The launder shall be fabricated from 12" diameter, Type 316 stainless steel pipe material. Details of the submerged launder is shown on the plans."

11. SECTION 11373 - SINGLE-STAGE BLOWER

- a. Page 11373-1, paragraph 1.02(D), second to the last line, **DELETE** the word "inlet" and replace with "variable diffuser".
- b. Page 11373-3, paragraph 1.03(A)(6), **DELETE** Item No. 6 in its entirety.
- c. Page 11373-3, paragraph 1.05(A), **DELETE** Item Nos. 1, 2, 3 and 4 in its entirety.
- d. Page 11373-6, paragraph 2.07(A), at the end of the first sentence **DELETE** the word "skid".
- e. Page 11373-10, paragraph 2.19(B)(3), **DELETE** the word "Transmitter" and replace with "Switch".
- f. Page 11373-10, paragraph 2.19(B)(6), **DELETE** Item No. 6 in its entirety.
- g. Page 11373-10, paragraph 2.19(B)(7), **DELETE** the word "Transmitter" and replace with "Switches".
- h. Page 11373-10, paragraph 2.19(B)(9), **DELETE** the word "Transmitter" and replace with "Switch".

12. SECTION 11374 - AERATION SYSTEM

- a. Page 11374-9, paragraph 2.10(B), **DELETE** this paragraph in its entirety and replace with the following new paragraph:

"All exposed air piping shall be Schedule 10 Type 316 stainless steel, including air piping from the blower, through the headers and laterals, and up to the air manifold at the bottom of the tank."
- b. Page 11374-10, paragraph 2.10(D), **ADD** the following sentence at the end of this paragraph:

"All valves shall be fabricated from Type 316 stainless steel material."

13. SECTION 11393 - EFFLUENT FILTER SYSTEM

- a. Page 11393-1, paragraph 1.01(A), second to the last sentence of the first paragraph, **DELETE** "The existing filter compressed air system shall also supply air to the additional filters provided in accordance with Section 11370, "Rotary Screw Air Compressor and Appurtenances." and replace with "The existing filter compressed air system shall supply air to the additional filter units."

14. SECTION 13413 - ABOVE FUEL STORAGE TANK

- a. Page 13413-6, **DELETE** Paragraph 2.04 in its entirety.

ITEM NO. 4 - DRAWINGS

Replace the following drawings with the attached drawings:

| <u>Figure</u> | <u>Drawing</u> | <u>Description</u>                    |
|---------------|----------------|---------------------------------------|
| <u>Number</u> | <u>Number</u>  |                                       |
| 1             | C602           | Added callouts                        |
| 2             | C605           | Revised top of wall elevations        |
| 3             | C608           | Added landscaping notes               |
| 4             | C611           | Revised callout                       |
| 5             | S7             | Added retaining wall detail           |
| 6             | S7             | Added pipe support detail             |
| 7             | N701           | Motor HP (150 -> 75)                  |
| 8             | M262           | Added note for SS fittings and valves |

End of Addendum No. 1

All other items and conditions shall remain in full effect.

ENGINEERING DIVISION



ERIC T. HIRANO, P.E.

Chief Engineer

Department of Land and Natural Resources

**ATTACHMENT**

P R O P O S A L

FOR

DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION  
State of Hawaii

Job No. J32CO30A  
Waimanalo WWTP Improvements  
Waimanalo, Oahu, Hawaii

\_\_\_\_\_, 2005

Chief Engineer  
Engineering Division  
Department of Land and Natural Resources  
State of Hawaii  
Honolulu, Hawaii

Dear Sir:

The undersigned, having carefully examined the local conditions and all available records and information covering conditions which may affect the cost of the work to be performed, and having carefully examined the Plans and Specifications, and other contract documents, hereby proposes to furnish and pay for all materials, tools, equipment, labor and other incidental work necessary to complete the wastewater treatment plant improvements as required or called for in this Proposal, all according to the true intent and meaning of the Notice to Bidders, Information and Instructions to Bidders, Proposal, Detailed Specifications, Interim General Conditions, Special Provisions, Plans, and any and all addenda for:

Job No. J32CO30A  
Waimanalo WWTP Improvements  
Waimanalo, Oahu, Hawaii

on file in the office of the Engineering Division for the TOTAL SUM BID (Items 1 to 33) of:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_ Dollars (\$\_\_\_\_\_) and will fully complete all work under this contract within 540 consecutive calendar days from the date of written notice to proceed, including date of said order, said total sum being itemized on the following pages.

BIDDING SCHEDULE  
 WAIMANALO WASTEWATER TREATMENT PLANT JOB NO. J32CO30A

| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 1        | LS                 | Mobilization  |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 2        | LS                 | Clearing and grubbing, including all demolition work and/or removal and disposal of existing shrubbery and trees as indicated on the plans. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 3        | LS                 | Site grading, including excavation, embankment, compaction, soil testing, grade adjustment wall, and erosion control.                       |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 4        | 920 SY             | Asphaltic concrete pavement, including 6-inch aggregate base course (95% compaction), and 2-1/2 inch asphaltic concrete, in place complete. |            |          |          |
|          |                    | Per Sq. Yd.   | \$ _____   |          | \$ _____ |
| 5        | 1,100 LF           | Concrete header, in place complete.   |            |          |          |
|          |                    | Per Lin. Ft.  | \$ _____   |          | \$ _____ |



| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 6        | LS                 | Sidewalk and ramps, concrete w/reinforcing steel, in place complete.  |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 7        | LS                 | Plant wide piping for water, sewer, process air, and other process piping including dewatering, trench excavation and backfill, pipe and fittings, valves, concrete blocks, miscellaneous valve boxes, manholes, testing, and all appurtenances, in place complete. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 8        | 210 SY             | Gravel landscaping, including weed barrier, #2 rock gravel, and plastic edger, in place complete.   |            |          |          |
|          |                    | Per Sq. Yd.   | \$ _____   |          | \$ _____ |
| 9        | LS                 | Generator building structure and equipment, including painting, and all architectural, mechanical, plumbing, ventilation, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 9.A through 9.D.               |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |

| Item No.                                    | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL |
|---|--------------------|---|------------|----------|-------|
| 9A  | 1 EA               | Emergency generator (EG01G), including automatic transfer switch, exhaust piping, silencers, and all appurtenances, furnish and install, in place complete.   |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| 9B  | 1 EA               | Day Tank with three (3) fuel pumps, (PMP 01G, 02G & 03G) furnish and install, in place complete.  |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| 9C  | 1 EA               | Aboveground fuel storage tank system, including a dual containment fuel tank (ET 01G), fuel piping, fittings and valves, pipe supports, protective coating, support base structure, bollards, structural, mechanical, instrumentation, electrical and all appurtenances, in place complete. |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| 9D  | 1 EA               | Motor Control Center, furnish and install, in place complete.   |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| SUBTOTAL (Items 9.A through 9.D, inclusive) |                    |   |            | \$ _____ |       |

| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 10       | LS                 | Modifications to the existing Influent Pump Station, including demolition work, architectural, mechanical, ventilation, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 10.A through 10.C. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 10A      | 2 EA               | Influent Pumps (PMP 01I & 02I), furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 10B      | 1 EA               | Influent sampler (SMP 01I) and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 10C      | 1 EA               | Venturi flow meter and differential pressure transmitter (FE/FIT 01I), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    |   | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Items 10.A through 10.C, inclusive)   |            |          | \$ _____ |

| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 11       | LS                 | Modifications to the existing primary clarifier, including demolition work, concrete pads, roof structure, 316SS plates, stop logs, splitter box, FRP grating, and all architectural, mechanical, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 11.A and 11.B. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 11A      | 3 EA               | Primary sludge pumps (PMP 01P, 02P & 03P), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 11B      | 1 EA               | Magnetic flowmeter (FE/FIT 01P), furnish and install, in place complete.  |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Items 11.A and 11.B, inclusive)   |            |          | \$ _____ |

| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 12       | LS                 | Modifications to the existing Rapid Bloc Tank (New Equalization Basin), including demolition work, steel platform, grating, concrete walkway, 316 SS plates, and all architectural, mechanical, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 12.A through 12.D. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 12A      | 4 EA               | EQ transfer pumps (PMP 01E, 02E, 03E & 04E), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 12B      | 1 EA               | Aeration system, including, piping, valves supports, and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 12C      | 1 EA               | Cutthroat flume (full length) and ultrasonic level measuring device (FE/FIT 03E), furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 12D      | 2 EA               | Magnetic flowmeters (FE/FIT 01E & 02E), furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |

| Item No.                                      | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|---|--------------------|---|------------|----------|----------|
| SUBTOTAL (Items 12.A through 12.D, inclusive) |                    |   |            |          | \$ _____ |
| 13  | LS                 | Anoxic/Aerobic basin structure and equipment, including dewatering, FRP grating, piping, pipe supports, protective coating, and all architectural, mechanical, plumbing, ventilation, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 13.A through 13.D. |            |          |          |
| Lump Sum                                      |                    |   |            |          | \$ _____ |
| 13A   | 2 EA               | Internal recycle pumps (PMP 01A & 02A), and all appurtenances, furnish and install, in place complete.  |            |          |          |
|   |                    | Each  | \$ _____   | \$ _____ |          |
| 13B   | 14 EA              | Cutthroat flumes, stop gates (SG 12A - 25A), furnish and install, in place complete.  |            |          |          |
|   |                    | Each  | \$ _____   | \$ _____ |          |
| 13C   | 1 EA               | Aeration system, including diffusers, piping, valves, pipe supports, and all appurtenances furnish and install, in place complete.  |            |          |          |
|   |                    | Each  | \$ _____   | \$ _____ |          |

| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 13D      | 1 EA               | Cutthroat flume (full length) and ultrasonic level measuring device (FE/FIT 01A), furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Items 13.A through 13.D, inclusive)   |            |          | \$ _____ |
| 14       | LS                 | Modifications to the existing Blower Building, including demolition work, architectural, mechanical, ventilation, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 14.A and 14.B. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 14A      | 1 EA               | Single-stage blower (BLR 01B), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 14B      | 1 EA               | Multi-stage blower (BLR 02B), and all appurtenances, furnish and install, in place complete.  |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Items 14.A and 14.B, inclusive)   |            |          | \$ _____ |

| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 15       | LS                 | Final clarifier and return activated sludge (RAS) pump station structure and equipment, including dewatering, FRP grating, piping, pipe supports, protective coating, and all architectural, mechanical, plumbing, ventilation, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 15A through 15C. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |
| 15A      | 2 EA               | Clarifier equipment as specified (FC 01C & 02C), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 15B      | 4 EA               | RAS pumps (PMP 01C, 02C, 03C & 04C), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 15C      | 2 EA               | Magnetic flowmeters (FE/FIT 01C & 02C), furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Items 15.A through 15.C, inclusive)   |            |          | \$ _____ |



| Item No. | Estimated Quantity | Item Description   | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|--|------------|----------|----------|
| 16       | LS                 | Flow distribution and secondary collection box structure and equipment, including FRP grating, piping and all architectural, structural, electrical, and mechanical work, in place complete, excluding the equipment cost of item 16A. |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 16A      | 3 EA               | Cutthroat flumes, stop gates (SG 01S - 03S), furnish and install, in place complete.   |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Item 16.A)   |            |          | \$ _____ |
| 17       | LS                 | Scum pump station structure and equipment, including piping, pipe supports, protective coating, and all mechanical, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Item 17.A.    |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 17A      | 2 EA               | Scum pumps (PMP 07C & 08C), level sensors, equipment hatch, and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Item 17.A)   |            |          | \$ _____ |

| Item No. | Estimated Quantity | Item Description   | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|--|------------|----------|----------|
| 18       | LS                 | Return flow pump station structure and equipment, including dewatering piping, pipe supports, protective coating, and all mechanical, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 18.A and 18.B.                            |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 18A      | 2 EA               | Return flow pumps (PMP 01R & 02R), level sensors, equipment hatch, and all appurtenances, furnish and install, in place complete.  |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |
| 18B      | 1 EA               | Magnetic flowmeter (FE/FIT 01R), furnish and install, in place complete.   |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Item 18.A and 18.B, inclusive)   |            |          | \$ _____ |
| 19       | LS                 | Effluent filter structure and equipment, including demolition work, dewatering, FRP grating, piping, pipe supports, protective coating, and all architectural, mechanical, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Item 19.A. |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |

| Item No. | Estimated Quantity | Item Description   | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|--|------------|----------|----------|
| 19A      | 12 EA              | Filter equipment (FLT 01F - 12F), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Item 19.A)   |            |          | \$ _____ |
| 20       | LS                 | Injection wells structure and equipment, including, well head piping and appurtenances, miscellaneous piping and valves, instrumentation devices, hydrogeological services, and all mechanical, instrumentation, electrical, and structural work, in place complete, excluding the costs of Items 20.A through 20.G. |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 20A      | 3 EA               | Magnetic flowmeters (FE/FIT 01W, 02W & 03W) furnish and install, in place complete.  |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |
| 20B      | 600 LF             | Drilling bore hole, in place complete.   |            |          |          |
|          |                    | Per Lin. Ft.   | \$ _____   | \$ _____ |          |
| 20C      | 240 LF             | Solid casing (304 stainless steel), in place complete.   |            |          |          |
|          |                    | Per Lin. Ft.   | \$ _____   | \$ _____ |          |

| Item No.                                      | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL |
|---|--------------------|---|------------|----------|-------|
| 20D   | 360 LF             | Well screen (304 stainless steel), in place complete  |            |          |       |
|   |                    | Per Lin. Ft.  | \$ _____   | \$ _____ |       |
| 20E   | 3 EA               | Well development, as specified.   |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| 20F   | 3 EA               | Well capacity testing, as specified.  |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| 20G   | 3 EA               | Water quality sampling and testing  |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| 20H   | 1 EA               | Rehabilitate and test (for flow capacity) one (1) existing well (either Well No. 5, 6 or 7), including reports, temporary piping, pumps, and appurtenances, and in accordance with the specification Section 02750. [Before bidding, the contractor shall visit the plant and meet with the plant supervisor to determine which of the three existing wells will be tested] |            |          |       |
|   |                    | Each  | \$ _____   | \$ _____ |       |
| SUBTOTAL (Items 20.A through 20.H, inclusive) |                    |   |            | \$ _____ |       |

| Item No. | Estimated Quantity | Item Description   | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|--|------------|----------|----------|
| 21       | LS                 | DAFT tank structure, including dewatering FRP grating, piping, pipe supports, protective coating, and all architectural, mechanical, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 21.A and 21.B.   |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 21A      | 1 EA               | DAFT tank equipment, including DAFT recirculation pumps (PMP 03D & 04D), air compressors (AC 01D & 02D), and pressurization tanks (TNK 01D & 02D) (Refer to Spec. Section 11362).  |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Item 21.A)   |            |          | \$ _____ |
| 22       | LS                 | Dissolved Air Flotation Thickener (DAFT) building structure and equipment, including painting, flush water tank, and all architectural, mechanical, plumbing, ventilation, instrumentation, electrical, and structural work, in place complete, excluding the equipment cost of Items 21.A through 21.C. |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 22A      | 1 EA               | Flush water pump system (PMP 05D), and all appurtenances, furnish and install, in place complete.  |            |          |          |
|          |                    | Each   | \$ _____   | \$ _____ |          |

| Item No. | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|---|------------|----------|----------|
| 22B      | 2 EA               | Waste activated sludge (WAS) pumps (PMP 01D & 02D), and all appurtenances, furnish and install, in place complete.  |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 22C      | 1 EA               | Magnetic flowmeter - WAS Pump (FE/FIT 01D), furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 22D      | 1 EA               | Magnetic flowmeter - Transfer Pump (FE/FIT 02D), furnish and install, in place complete.  |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
| 22E      | 2 EA               | DAFT transfer pumps (PMP 06D & 07D), and all appurtenances, furnish and install, in place complete.   |            |          |          |
|          |                    | Each  | \$ _____   | \$ _____ |          |
|          |                    | SUBTOTAL (Item 22.A through 22.E, inclusive)  |            |          | \$ _____ |
| 23       | LS                 | NPDES Permits, as required to complete all construction operations, including permit fee, and detailed dewatering plan for construction of deep lines and structures. |            |          |          |
|          |                    | Lump Sum  |            |          | \$ _____ |

| Item No. | Estimated Quantity | Item Description   | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|--|------------|----------|----------|
| 24       | LS                 | Field Office Trailer (Refer to Section 01000, Paragraph 1.30 for details.  |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 25       | LS                 | Photographs, including photo prints, negatives, and photo albums.  |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 26       | LS                 | Monitoring soil, structural, and pipe movement, including, instrumentation (piezometers, settlement markers, and crack monitors), geotechnical services, surveying, photographs, reports, and appurtenances, in place complete.  |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
| 27       | LS                 | Supervisory Control and Data Acquisition System (SCADA). Furnish and install all SCADA hardware, software, system interfaces, conduits, wiring, interconnections, equipment cabinets, terminals and other required appurtenances for complete PLC-Based and Barrington-Based SCADA Systems. Lump Sum item shall include: system testing and commissioning; and a systems integrator responsible for the SCADA work indicated in Specifications Sections 13460 and 13461. |            |          |          |
|          |                    | Lump Sum   |            |          | \$ _____ |
|          |                    | <b>SUBTOTAL</b><br>(Items 1 through 27, inclusive)   |            |          | \$ _____ |

| Item No.  | Estimated Quantity | Item Description  | Unit Price | Subtotal | TOTAL             |
|---|--------------------|---|------------|----------|-------------------|
| <b>ALLOWANCES</b>   |                    |   |            |          |                   |
| Any allowance amount specified in the bid is to be considered an estimate of the amount required for the purpose specified and shall be include in the bidder's Total Bid Price. The Contractor shall be reimbursed upon submittal of proof of payment. Any amount remaining at the completion of the contract will revert to the State. The Contractor will make no claim in the event the State chooses to delete any allowance item from the Contract. |                    |   |            |          |                   |
| 28  |                    | Hawaiian Electrical Company utility installation charges.   | \$20,000   |          |                   |
| 29  |                    | Verizon Hawaii utility installation charges.  | \$5,000    |          |                   |
| 30  |                    | Geotechnical Services   | \$25,000   |          |                   |
| 31  |                    | Removal and Disposal of existing underground fuel storage tank, associated piping, and all appurtenances. | \$30,000   |          |                   |
| 32  |                    | Building Permit   | \$80,000   |          |                   |
| 33  |                    | Honolulu Board of Water Supply  | \$135,000  |          |                   |
| <b>TOTAL ALLOWANCES</b><br>(Items 28 through 33, inclusive)   |                    |   |            |          | <u>\$ 295,000</u> |
| <b>TOTAL BID PRICE</b><br>(Items 1 through 33, inclusive)   |                    |   |            |          | <u>\$</u>         |



| Item No. | Estimated Quantity | Item Description   | Unit Price | Subtotal | TOTAL    |
|----------|--------------------|--|------------|----------|----------|
| 34       | LS                 | ADJUSTMENT based on the difference as stated in Schedule A [sum of "Basic Bid" installed cost (Column 1) less the sum of "Approved Alternate" installed cost (Column 2). |            |          |          |
|          |                    | ADJUSTMENT WITH "APPROVED ALTERNATES"  |            |          |          |
|          |                    | Note: If there are no alternates, Item 34 should be zero.  |            |          | \$ _____ |
|          |                    | ADJUSTED TOTAL BID PRICE [TOTAL BID PRICE less ITEM 34]  |            |          | \$ _____ |

Note: Whenever the word "including" is mentioned in the above text, it shall also be defined as "including but not limited to".

## MAJOR EQUIPMENT ITEMS AND PRODUCTS

In connection with the major equipment items and products, as listed in Schedule A, to be furnished and installed for this project, the Bidder expressly agrees to the provisions of Section 01100-SUBSTITUTION OF MAJOR EQUIPMENT ITEMS AND PRODUCTS and to the following:

1. That the TOTAL BASIC PRICE stated in the Bidding Schedule includes only the installed prices for major equipment items or products of manufacturers listed as "Basis of Bid" in Column 1 of Schedule A.
2. That Bidders desiring to offer price quotes for substitute major equipment items or products may at their option fill in the name of one approved manufacturer on the line listed as Alternate in Column 2 of Schedule A, and provide the installed price of each proposed Alternate major equipment item or project on an installed basis in the space provided. Column 1 of Schedule A must be completely filled in the spaces provided whether or not the Bidder desires to offer price quotes for approved alternate equipment items or products. For an "Approved Alternate" equipment item or product to be selected as the low bid, it's installed cost in Schedule A, Column 2, must be less than the installed cost of the corresponding "Basis of Bid" equipment item or product as stated in Schedule A, Column 1.
3. That all installed prices stated in both Column 1 and Column 2 of Schedule A include the preparation and submittal of detailed shop drawings showing all modifications, if any, to the Contract Drawings necessary to accommodate such equipment and furthermore that all installed costs stated on Schedule A include a complete operating installation, and the furnishing and installing of any and all changes or additions in structure, piping, buildings, civil, mechanical and electrical work, accessories and controls, necessary to accommodate the equipment or product.
4. That all proposed "Alternate" major equipment items or products listed in Schedule A are of equal quality and function to the identified Basis of Bid major equipment items or products and will perform as specified.
5. That the undersigned agrees to furnish and install such major equipment items or products for a contract price equal to the TOTAL BID PRICE listed in the proposal, ADJUSTED by the DIFFERENCES between the installed price as stated on Schedule A for each Basis of Bid major equipment item or product (Column 1) and the installed price for each Alternate major equipment item or product (Column 2) proposed by the Bidder and accepted as "or equal" by the Engineer. The adjusted total bid price is presented in the Bidding Schedule.
6. That, if awarded a Contract on this project, all major equipment items or products be guaranteed by the undersigned and his Surety to meet the performance requirements of the Contact Documents.
7. Equipment cost in the Bidding Schedule is defined as the cost F.O.B. at the project site. Installed cost in Bidding Schedule, if required, and Schedule A is defined as the equipment cost plus the cost to install the equipment with all modifications to civil, structural, mechanical, instrumentation, and electrical work in place complete, as shown and specified.

# SCHEDULE A

## TABULATION OF MAJOR EQUIPMENT ITEMS AND PRODUCTS

|         |                               | Column 1 - "Basis of Bid"      |                 | Column 2 - "Alternate"       |                 |
|---------|-------------------------------|--------------------------------|-----------------|------------------------------|-----------------|
| Section | Description                   | "Basis of Bid" Manufacturer    | Installed Price | Approved Alter. Manufacturer | Installed Price |
| 06610   | FRP Grating                   | Duradek                        | \$              |                              | \$              |
| 11201   | Fabricated Gates              | Fontaine                       | \$              |                              | \$              |
| 11201   | Motor Actuators               | Limitorque                     | \$              |                              | \$              |
| 11240   | Water Booster System          | Amtrol, Inc.                   | \$              |                              | \$              |
| 11310   | Sewage Pump                   | Morris Pump                    | \$              |                              | \$              |
| 11316   | Submersible Pump              | Flygt                          | \$              |                              | \$              |
| 11317   | Propeller Pumps               | Flygt                          | \$              |                              | \$              |
| 11318   | Progressive Cavity Pumps      | Moyno                          | \$              |                              | \$              |
| 11319   | Return Activated Sludge Pumps | Fairbanks Morse Pump           |                 |                              |                 |
| 11320   | Waste Activated Sludge Pumps  | Penn Valley Pump Company, Inc. | \$              |                              | \$              |
| 11339   | Final Clarifier               | Westech                        | \$              |                              | \$              |
| 11362   | DAFT System                   | Westech                        | \$              |                              | \$              |
| 11373   | Single-Stage Blower           | Turblex, Inc.                  | \$              |                              | \$              |
| 11374   | Aeration System               | Environmental Dynamics, Inc.   | \$              |                              | \$              |
| 11375   | Multi-Stage Blower            | Lamson Corp.                   | \$              |                              | \$              |

# SCHEDULE A

## TABULATION OF MAJOR EQUIPMENT ITEMS AND PRODUCTS

| Section | Description                      | Column 1 - "Basis of Bid"      |                    | Column 2 - "Alternate"          |                    |
|---------|----------------------------------|--------------------------------|--------------------|---------------------------------|--------------------|
|         |                                  | "Basis of Bid"<br>Manufacturer | Installed<br>Price | Approved Alter.<br>Manufacturer | Installed<br>Price |
| 11393   | Effluent Filters                 | Parkson                        | \$ _____           |                                 | \$ _____           |
| 13413   | Aboveground Fuel<br>Storage Tank | Convault                       | \$ _____           |                                 | \$ _____           |
| 16040   | Variable Frequency<br>Drives     | Toshiba                        | \$ _____           |                                 | \$ _____           |
| 16205   | Engine Generator                 | Catapillar                     | \$ _____           |                                 | \$ _____           |
|         |                                  | Total 1                        | \$ _____           | Total 2                         | \$ _____           |

$$\text{ADJUSTMENT} = \$ \text{ (Total 1)} - \$ \text{ (Total 2)} = \$ \text{_____}$$

Note:

The installed prices of all "Basis of Bid" major equipment items or products must be written in the space provided. Failure to furnish the installed price for each "Basis of Bid" major equipment item or product may be cause for rejection of the bid. If the Bidder proposes to offer an "Alternate" major equipment item or product, both the manufacturer's name and the installed price of the equipment must be written in the space provided in Column 2. If there are no "Alternates," then the installed price in Column 1 shall be copied into Column 2. The ADJUSTMENT should be zero if there are no alternate major equipment items or products.

# HAWAII PRODUCTS PREFERENCE AND/OR USE OF HAWAII PRODUCTS

It is understood that certain Hawaii products as described in the schedule below are acceptable to be used in this work and that, pursuant to Sections 103D-1002, Hawaii Revised Statutes, which provides preference for Hawaii Products, the bidder proposing to use such Hawaii products must fill in the schedule below.

However, where there are a number of qualifying classes of Hawaii products of a given description, the bidder must indicate on the schedule which class will be furnished by circling the class of the particular Hawaii product that will be used. Otherwise, preference will be given based on the class with the lower percentage.

If the bidder proposes to use Hawaii products, the bidder must so designate in said schedule by entering the cost of such product in the appropriate space provided. Failure on the part of the bidder to designate the use of a Hawaii product will void any preference for that product.

## SCHEDULE OF ACCEPTABLE HAWAII PRODUCTS AND DESIGNATION OF HAWAII PRODUCTS TO BE USED

| ACCEPTABLE HAWAII PRODUCTS              |         | HAWAII PRODUCTS TO BE USED      |                     |
|---|---------|---------------------------------|---------------------|
| Jobsite,                                |         | Cost FOB                        |                     |
| including                               |         | Unloaded                        |                     |
| General <u>Description</u>              |         | <u>Class</u>                    | <u>Manufacturer</u> |
| <u>Excise &amp; use Taxes</u>           |         |                                 | Applicable          |
| Aggregates                              | III-10% | Grace Pacific Corporation       |                     |
|   |         | Ameron HC&D                     |                     |
| Asphalt Concrete                        | II-5%   | Grace Pacific Corporation       |                     |
| Mixes and Products                      |         | Hawaiian Bitumuls & Paving Co.  |                     |
| Precast/Prestressed Concrete Components | III-10% | Con-Fab Corporation             |                     |
| Concrete/Masonry                        | III-10% | Grace Pacific Concrete Products |                     |
|   |         | Tileco, Inc.                    |                     |
| Cement, Portland                        | I-3%    | Hawaiian Cement                 |                     |
| Sand                                    | III-10% | Grace Pacific Corporation       |                     |

The bidder agrees that preference for Hawaii products shall be taken into consideration to determine the low bidder in accordance to said Sections and rules promulgated; however, the award of contract will be in the amount of the bid offered exclusive of any preferences.

The bidder will be given the Hawaii Products Preference for bid evaluation purposes provided that the bidder has completed the required information in the

Schedule of Acceptable Hawaii Products and Designation of Hawaii Products to be used. If a bidder has designated use of a Hawaii Product and fails to provide the product, the contract will become void and no payments will be made.

### RECYCLED PRODUCTS PREFERENCE

This project allows a 10% price preference for recycled products in accordance with HRS 103D-1005. Bidders are required to complete this section. FAILURE TO COMPLETE THIS SECTION MAY BE SUFFICIENT CAUSE FOR REJECTION OF THE BID.

Only the following products are being considered for the recycled product preference. Please indicate your selection of recycled or non-recycled product by indicating its cost FOB jobsite unloaded in the schedule below, including applicable General Excise & Use Taxes.

| <u>DESCRIPTION</u> | <u>RECYCLED<br/>PRODUCT COST</u> | <u>NON-RECYCLED<br/>PRODUCT COST</u> |
|--------------------|----------------------------------|--------------------------------------|
| _____              | \$ _____                         | \$ _____                             |
| _____              | \$ _____                         | \$ _____                             |
| _____              | \$ _____                         | \$ _____                             |
| _____              | \$ _____                         | \$ _____                             |

The bidder requesting a recycled product preference by his selection above, shall also complete and submit the form "CERTIFICATION OF RECYCLED CONTENT" as shown in the Interim General Conditions and provide all supporting information with this proposal. Additional information may be requested to qualify a product.

The following definitions are applicable to the CERTIFICATION OF RECYCLED CONTENT form:

"Post-consumer recovered material" means any product used by a consumer, including a business that purchases the material, that has served its intended end use, and that has been separated or diverted from the solid waste stream for the purpose of use, reuse, or recycling.

"Product" includes materials, manufactures, supplies, merchandise, goods, wares, and foodstuffs.

"Recovered material" means waste material and by-products that have been separated, diverted, or removed from the solid waste stream after a manufacturing process for the purpose of use, reuse, or recycling. Recovered material does not include those materials and by-products that are generated and normally reused on-site or within original manufacturing processes (such as mill broke, in the case of paper products).

"Recycled content" means the percentage of a product composed of recovered material, or post-consumer recovered material, or both.

"Recycled product" means a product containing recovered material, or post-consumer recovered material, or both.

The bidder agrees that preference for recycled products shall be taken into consideration to determine the low bidder in accordance with said Section and the rules promulgated, however, the award of contract will be in the amount of the bid offered exclusive any preference.

#### CONDITION OF AWARD

It is understood that the award of the contract will be made on the basis of the lowest responsible Total Bid (Items 1 to 33) selected by the Board of Land and Natural Resources.

It is understood and agreed that the Board of Land and Natural Resources reserves the right to reject any and/or all bids and waive any defects when, in the Board's opinion, such rejection or waiver will be for the best interest of the State of Hawaii.

In the event all bids exceed available funds certified by the appropriate fiscal officer, the head of the purchasing agency responsible for the procurement in question is authorized in situations where time or economic considerations preclude resolicitation of work of a reduced scope to negotiate an adjustment of the bid price, including changes in the bid requirements, with the low responsible and responsive bidder, in order to bring the bid within the amount of available funds. It is understood and agreed upon that the head of the purchasing agency may delete a portion or all of any item(s) in the proposal at the stated unit or lump sum price as necessary to stay within the available funding. The bidder is responsible to make an earnest effort to represent the actual cost of each item, including all materials, labor, equipment, overhead and profit in their bid proposal to preclude claims of anticipated profit or loss of profit because of an unbalanced bid proposal.

It is also understood that if a mutually agreeable cost for the reduced scope of work necessitated by a lack of available funds cannot be agreed upon between the bidder and the head of the purchasing agency within 14 calendar days after the bid opening, then the bid may be rejected in the best interest of the purchasing agency, and the head of the purchasing agency may negotiate in progressive order (lowest to highest) with the next lowest responsible and responsive bidder.

It is also understood and agreed that the award of the contract shall be conditioned upon funds being made available for this project and further upon the right of the Board of Land and Natural Resources to hold all bids received for a period of one hundred eighty (180) days from the date of the opening thereof, unless otherwise required by law, during which time no bid may be withdrawn.

It is also understood that Notice to Proceed may be delayed up to one hundred eighty (180) days after the bid opening date, and that no additional compensation will be provided for any claim for escalation or delay for issuance of Notice to Proceed on or before that date.

It is also understood and agreed that the quantities given herewith are approximate only and are subject to increase or decrease, and that the undersigned will perform all quantities of work as either increased or decreased, in accordance with the provisions of the Contract Specifications.

It is also understood and agreed that the estimated quantities shown for the items for which a UNIT PRICE is asked in this Proposal are only for the purpose of comparing on a uniform basis, bids offered for the work under this contract, and the undersigned agrees that he is satisfied with and will at no time, dispute said estimated quantities as a means of claims for anticipated profit or loss of profit, because of a difference between the quantities of the various classes of work done or the materials and equipment installed, and the said estimated quantities. On UNIT PRICE bids, payment will be made only for the actual number of units incorporated into the finished project at the contract UNIT PRICE.



After the proposals are opened and read, the figures will be extended and/or totaled in accordance with the bid prices of the acceptable proposals and the totals will be compared. In the comparison of bids, words written in the proposal shall govern over figures and unit prices will govern over totals. Until the award of the contract, however, the right will be reserved to reject any and all proposals and to waive any defects or technicalities as may be deemed best for the interest of the State.

It is also understood and agreed that liquidated damages in the amount of ONE THOUSAND AND NO/100 DOLLARS (\$1,000.00) for each and every calendar day in excess thereof prior to completion of the contract shall be withheld from payments due to the Contractor.

It is also understood and agreed that if this bid is accepted, the successful bidder must enter into and execute a contract with the Board of Land and Natural Resources and furnish a Performance and Payment Bond, as required by law. These bonds shall conform to provisions of Section 103D-324 and 325, Hawaii Revised Statutes and any law applicable hereto.

It is also understood and agreed that the successful bidder will provide all necessary labor, materials, tools, equipment, and other incidentals necessary to do all the work and furnish all the materials specified in the contract in the manner and time herein prescribed, and according to the requirements of the Engineer as therein set forth.

It is understood that by submitting this proposal, the undersigned is declaring that his firm has not been assisted or represented on this matter by an individual who has, in a State capacity, been involved in the subject matter of this contract in the past two years.

It is understood that by submitting this proposal in accordance with HAR 3-122-192, the undersigned is declaring that the price submitted is independently arrived without collusion.

It is also understood that by submitting this proposal, a Certification for Safety and Health Programs for bids in excess of \$100,000 (in accordance with HRS 396-18), the undersigned certifies that his organization will have a written safety and health plan for this project that will be available and implemented by the Notice to Proceed date of this project. Details of the requirements of this plan may be obtained from the Department of Labor and Industrial Relations, Occupational, Safety and Health Division (HIOSH).

It is further understood and agreed that the successful bidder shall comply with paragraph 3.1.a "SUBCONTRACTING" of the General Provisions which requires that the contractor shall perform with his own organization and with the assistance of workmen under his immediate superintendence, work of a value not less than twenty percent (20%) of the value of all work embraced in the Contract, except that certain contract items of work, if specifically referred to in the special provisions, will be exempted from said twenty percent requirement.

Compliance with §103-310 HRS. As a condition of award all bidders shall comply with all laws governing entities doing business in the State, including Chapter 237 HRS (general excise tax); Chapter 383 HRS (employment security - unemployment insurance); Chapter 386 HRS (workers compensation); Chapter 392 HRS (temporary disability insurance); and Chapter 393 HRS (pre-paid health care), and shall produce all documents to the State (DLNR, Engineering Division) required to demonstrate compliance with these subsections. Any bidder making a false affirmation or certification under

this subsection shall be suspended and may be debarred from further offerings or awards pursuant to §103D-702 HRS.

**RECEIPT OF ADDENDA**

The bidder also acknowledges receipt of any and all addenda issued by the Engineering Division, by recording the date of receipt of the respective addenda in the space provided below:

| <u>Addendum</u> | <u>Date Received</u> | <u>Addendum</u> | <u>Date Received</u> |
|-----------------|----------------------|-----------------|----------------------|
| No. 1           | _____                | No. 5           | _____                |
| No. 2           | _____                | No. 6           | _____                |
| No. 3           | _____                | No. 7           | _____                |
| No. 4           | _____                | No. 8           | _____                |

It is understood that failure to receive any such addendum shall not relieve the Contractor from any obligation under this Proposal as submitted.

It is also understood and agreed that if this Proposal is accepted and the undersigned should fail or neglect to contract as aforesaid, the Board may determine that the bidder has abandoned the Contract, and thereupon, forfeiture of the security accompanying his proposal shall operate and the same shall become the property of the Board.

JOINT CONTRACTORS OR SUBCONTRACTORS  
TO BE ENGAGED ON THIS PROJECT

The Bidder agrees that the following is a complete listing of all joint contractors or subcontractors covered under Chapter 444, Hawaii Revised Statutes (HRS), who will be engaged by the Bidder on this project to perform the required work indicated pursuant to Section 103D-302, HRS. The Bidder certifies that it and its listed subcontractors or joint contractors together hold all licenses necessary to complete the Work, and understands that failure to comply with this requirement may be just cause for rejection of the bid.

"A" General Engineering Contractors and "B" General Building Contractors are reminded that due to the Hawaii Supreme Court's January 28, 2002 decision in Okada Trucking Co., Ltd. v. Board of Water Supply, et al., 97 Haw. 450 (2002), they are prohibited from undertaking any work, solely or as part of a larger project, which would require the general contractor to act as a specialty contractor in any area in which the general contractor has no license. Although the "A" and "B" contractor may still bid on and act as the "prime" contractor on an "A" or "B" project (See, HRS § 444-7 for the definitions of an "A" and "B" project.), respectively, the "A" and "B" contractor may only perform work in the areas in which they have the appropriate contractor's license (An "A" or "B" contractor obtains "C" specialty contractor's licenses either on its own, or automatically under HAR § 16-77-32.). The remaining work must be performed by appropriately licensed entities. It is the sole responsibility of the contractor to review the requirements of this Project and determine the appropriate licenses that are required to complete the Project.

The Bidder shall include the complete firm name, license number and nature and classification description of each Joint Contractor or Subcontractor listed below. For projects with Alternate(s), Bidders shall fill out the supplemental schedule and list the Joint Contractor or Subcontractor who will be engaged for the respective Alternate Work. Do not include any Joint Contractor or Subcontractor previously listed.

Bidders shall list only one Joint Contractor or Subcontractor per required specialty contractor's license.

| Class | Classification<br>Description | License<br>No. | Complete Firm Name<br>Joint Contractor or<br>Subcontractor |
|-------|-------------------------------|----------------|--|
|       |                               |                |  |
|       |                               |                |  |
|       |                               |                |  |
|       |                               |                |  |
|       |                               |                |  |
|       |                               |                |  |
|       |                               |                |  |
|       |                               |                |  |

Enclosed herewith is a:

- |                                |   |        |
|--------------------------------|---|--------|
| 1. Surety Bond (*1)            | ) |        |
| 2. Legal Tender (*2)           | ) |        |
| 3. Cashier's Check (*3)        | ) |        |
| 4. Certificate of Deposit (*3) | ) | in the |
| 5. Certified Check (*3)        | ) | amount |
| 6. Official Check (*3)         | ) | of     |
| 7. Share Certificate (*3)      | ) |        |
| 8. Teller's Check (*3)         | ) |        |
| 9. Treasurer's Check (*3)      | ) |        |

(Cross Out Those Not Applicable)

\_\_\_\_\_ Dollars(\$\_\_\_\_\_)

as required by law.

Respectfully submitted,

\_\_\_\_\_  
Name of Company, Joint Venture  
or Partnership

\_\_\_\_\_  
Contractor's License No.

By \_\_\_\_\_  
Signature (\*4)

Title \_\_\_\_\_

Date \_\_\_\_\_

Address \_\_\_\_\_

Telephone No. \_\_\_\_\_

NOTES:

1. Surety bond underwritten by a company licensed to issue bonds in this State;
2. Legal tender; or
3. A certificate of deposit; share certificate; or cashier's, treasurer's, teller's, or official check drawn by, or a certified check accepted by, and payable on demand to the State by a bank, a savings institution, or credit union insured by the Federal Deposit Insurance Corporation or the National Credit Union Administration.
  - A. These instruments may be utilized only to a maximum of \$100,000.
  - B. If the required security or bond amount totals over \$100,000, more than one instrument not exceeding \$100,000 each and issued by different financial institutions shall be accepted.
4. Please attach to this page evidence of the authority of this officer to submit bids on behalf of the Company and also the names and residence addresses of all officers of the Company.
5. Fill in all blank spaces with information asked for or bid may be invalidated.  
PROPOSAL MUST BE INTACT, MISSING PAGES MAY INVALIDATE YOUR BID.

### EQUIPMENT AND PRODUCT SUPPLIERS

The suppliers of equipment and products shall be indicated below. The bidder shall indicate the equipment supplier used as a basis of his bid by writing in manufacturer's name in the appropriate space. Such supplier designation shall be limited to one supplier only.

The suppliers indicated below shall not be changed during the construction period except for the following reasons:

- \* Selected supplier cannot meet delivery schedules.
- \* Selected supplier is found not to meet the specifications.
- \* Selected supplier equipment is rejected by the Engineer as not meeting requirements of the plans and specifications.

|     |                        |     |  |
|-----|------------------------|-----|--|
| 1.  | Fabricated Gates       | 2.  | Motor Control Center                       |
| 3.  | Sewage Pumps           | 4.  | Standby Diesel Engine Generator            |
| 5.  | Clarifiers             | 6.  | Primary Sludge Pumps/Sludge Transfer Pumps |
| 7.  | Scum Pumps             | 8.  | SCADA System                               |
| 9.  | Flowmeter (Venturi)    | 10. | Day Tank, including fuel pumps             |
| 11. | Return Flow Pumps      | 12. | Pressure Transmitter                       |
| 13. | Aboveground Fuel Tank  | 14. | Pressure Gauge                             |
| 15. | Level Switches         | 16. | EQ Transfer Pumps                          |
| 17. | Internal Recycle Pumps | 18. | PVC Pipe                                   |
| 19. | Effluent Filter        | 20. | RAS Pumps                                  |

21. DAFT System

---

23. Air Compressor

---

25. Influent Sampler

---

27. Motorized Actuators

---

29. Cut throat Flumes

---

31. Stop Logs

---

33. Single-Stage Blower

---

35. Pressure Transducer

---

22. Aeration System & Diffusers

---

24. WAS Pump

---

26. Variable Frequency Drives

---

28. Magnetic Flowmeters

---

30. Ultrasonic Level Measuring  
Device

---

32. Stop Gates

---

34. Multi-Stage Blower

---

36. Flushwater Pump Station

---



CERTIFICATION OF COMPLIANCE  
WITH HRS 396-18, SAFETY AND HEALTH PROGRAMS  
FOR CONTRACTOR BIDDING ON STATE JOBS

PROJECT NAME AND NUMBER: \_\_\_\_\_

This is to certify that the undersigned will comply with the requirements of HRS 396-18, as follows:

- (A) Pursuant to HRS 396-18, all bids and proposals in excess of \$100,000 shall include a signed certification from the bidder that a written safety and health plan for the job will be available and implemented by the notice to proceed dates of the project. The written safety and health plan shall include:
- (1) A safety and health policy statement reflecting management commitment;
  - (2) A description of the safety and health responsibilities of all levels of management and supervisors on the job and a statement of accountability appropriate to each;
  - (3) The details of:
    - (a) The mechanism for employee involvement in job hazard analysis;
    - (b) Hazard identification, including periodic inspections and hazard correction and control;
    - (c) Accident and "near-miss" investigations; and
    - (d) Evaluations of employee training programs;
  - (4) A plan to encourage employees to report hazards to management as soon as possible and to require management to address these hazards promptly; and
  - (5) A certification by a senior corporate or company manager that the plan is true and correct.
- (B) Failure to submit the required certification may be grounds for disqualification of the bid.
- (C) Failure to have available on site or failure to implement the written safety and health plan by the project's notice to proceed date shall be considered willful noncompliance and be sufficient grounds to disqualify the award and terminate the contract.

\_\_\_\_\_  
Name of Contractor

Date: \_\_\_\_\_

\_\_\_\_\_  
Signature and Title

ACKNOWLEDGEMENT OF EXAMINATION OF SITE PROVISIONS

PROJECT NAME AND NUMBER: \_\_\_\_\_

This is to certify that I, the undersigned, of

\_\_\_\_\_  
Name of Contractor

understand the provisions of Section 103, Examination of Site, of the Special Provisions and we have thoroughly familiarized ourselves with the existing conditions of the site. The submission of our bid shall be considered as a warranty that we have made such examination and we are satisfied with the conditions to be encountered in performing the work.

Date: \_\_\_\_\_  
Signature and Title

(Failure to submit this form with the bid may be cause for rejection.)

SECTION 01800 - PERMITS, APPROVALS AND LICENSES

PART 1 - GENERAL

The Contractor shall consult applicable County and other governmental agencies for required charges and fees. Two (2) copies of all required permits shall be obtained by the Contractor and submitted to the Owner.

These may include but are not limited to the following:

- A. Building Permit (submitted by Engineer)
- B. Work on County Highway Permit
- C. Dumping Charges
- D. Grading and Grubbing Permit
- E. Excavation Permit
- F. Chapter 55 NPDES Permit (NOI Form C submitted by Engineer)
- G. Traffic Control Plan
- H. Stockpile Permit
- I. Underground Fuel Storage Tank (Removal)
- J. Certificate of Occupancy
- K. Demolition Permit
- L. Pressure Vessel Permit
- M. Aboveground Fuel Storage Tank
- N. UIC Permit (submitted by Engineer)

Time required for the Contractor to obtain all permits is considered part of construction period of this contract.

Payment for all costs and work covered by this section shall not be made directly but shall be considered incidental and included in the bid prices for the various items of work. Any fees exceeding the allowance amount shall be paid for by the Contractor.

PARTS 2 AND 3 - NOT USED

END OF SECTION

## SECTION 07550 - MODIFIED BITUMINOUS MEMBRANE ROOFING

### PART 1 - GENERAL

#### 1.01 GENERAL REQUIREMENTS

The Contractor shall be an approved applicator of the manufacturer whose roofing system he proposes to use. The Contractor shall be familiar with the products, equipment and the specified requirements and methods needed for the proper installation of the modified bituminous membrane roofing system.

#### 1.02 DESCRIPTION OF WORK

- A. Provide all labor, materials and equipment necessary to install roofing insulation, edge flashing, modified bituminous base sheet, membrane and cap sheet.
- B. Related Sections: Section 07600- FLASHING AND SHEET METAL for metal items incorporated into the roofing system and for flashing.

#### 1.03 PERFORMANCE REQUIREMENTS

- A. General: Provide installed roofing membrane, fluid applied waterproofing, and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.
- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. Windstorm Performance: Provide a roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated accordingly to the latest adopted edition of the Uniform Building Code FM I-09 uplift.
- D. Fire-Test-Response Performance: Provide roofing materials with a fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
  - 1. Exterior Fire Test Exposure: Class A, ASTM E 108, for application and roof slopes indicated.

2. Fire-Resistance Ratings: ASTM E 119, for fire-resistance-rated roof assemblies of which roofing system is a part.
- E. Provide an average insulation board thermal resistance (R) value of not less than 19 btu/hr/sq. ft. The minimum insulation thickness at any point shall not be less than the minimum required to conform to the roofing system manufacturer's warranty requirements.

#### 1.04 SUBMITTALS

- A. Product Data and Material Safety Data Sheets (MSDS):  
For each type of product indicated.
- B. Shop Drawings: For Roofing System. Include plans, elevations, sections, details, and attachments to other Work.
- C. Warranty Drawings: Provide record drawings with information sufficient to satisfy the requirements of the manufacturer's warranty.
- D. Samples for Verifications: For the following products:
  1. 12-by-12-inch square of base, sheet, ply sheet, and flashing backer sheet.
  2. 12-by-12-inch square of mineral-granule-surfaced roofing membrane cap sheet, of color specified.
  3. 12-by-12-inch square of roof insulation.
- E. Certificates:
  1. Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.
  2. Signed by roofing manufacturer certifying that its representative is authorized to act on and make commitments on behalf of the manufacturer.
  3. Signed by roofing system manufacturer certifying that the independent roofing auditor/inspector is authorized to act and make commitments in the manufacturer's behalf.
- F. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
  1. Submit evidence of meeting performance requirements.

- G. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of roofing system.
  - 1. Fire classification rating test.
- H. ICBO or Factory Mutual Research/Evaluation Reports: For components of roofing system.
- I. Maintenance Data: For roofing system to include in maintenance manuals.
- J. Warranties: Special warranties specified in this Section.
- K. Inspection Report: Copy of roofing system manufacturer representative's or independent roofing inspection progress and final inspection reports.

1.05 SYSTEM DESCRIPTION

- A. Modified bitumen roofing and insulation assembly meeting the performance requirements of this Section and consisting of the following components:
  - 1. Roofing system shall be Malarkey specification number M3-CI-DBC-H and M3-MI-DBC-H or approved equal.
  - 2. Three ply SBS mineral surfaced membrane roof covering, adhered with hot asphalt to the gypsum cover board substrate installed in conformance with the tested and approved fire rated assembly.

1.06 COORDINATION WITH OTHER SECTIONS

- A. Coordinate installation of metal edging, with SHEET METAL Section.
- B. Coordinate installation of vent pipe flashing and exhaust fans with PLUMBING Section and Air Conditioning Section.

1.07 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.
- B. Manufacturer Qualifications: A qualified manufacturer that has a UL, FM, Warnock Hersey, listing for roofing system identical to that used for this Project.

- C. Testing Agency Qualifications: An independent testing agency with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
- D. Source Limitations: Obtain components for roofing system approved by roofing system manufacturer.

1.08 PRE-INSTALLATION MEETING: The General Contractor, the authorized roofing and roofing adhesive manufacturers' representatives or their independent roofing inspectors shall attend a pre-installation meeting at Project site. Include other related trades, such as sheet metal contractor, as applicable. Notify participants at least five days prior to meeting.

- A. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
- B. Review and finish construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
- C. Review odor and air quality mitigation procedures, including location of asphalt kettles, ventilation openings and air flow.
- D. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
- E. Review structural loading limitations of roof deck during and after roofing.
- F. Review flashings, roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
- G. Review governing regulations and requirements for insurance and certificates if applicable.
- H. Review temporary protection requirements for roofing system during and after installation.
- I. Review roof observation and repair procedures after roofing installation.

1.09 ROOFING SYSTEM MANUFACTURER'S PROJECT PARTICIPATION

General Contractor, Roofing Installer and Roofing System Manufacturer Representative or their independent roofing inspector shall inspect the roof surfaces at the following times:

- A. Prior to the start of the roofing installation.

- B. At the start of the roofing application.
- C. At least once during the roofing application, unless the Roofing System Manufacturer requires additional inspections for warranty provisions.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storage.
- B. General: Each package of modified bitumen roof covering materials shall bear the label of a recognized agency having a service for the inspection of material and finished products during manufacture (e.g., ASTM, UL, etc.)
- C. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
  - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- D. Protect roll goods, roof insulation and any other materials that absorb or are affected by moisture from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation. Do not use wet materials and/or materials which appear to have been deteriorated after getting wet.
- E. Storage of Materials at Job Site
  - 1. Except when placed on roof decks immediately prior to installation, store roofing materials above the supporting surfaces, such as on pallets.
  - 2. Store materials containing solvents in a dry, cool area with proper fire and safety precautions.
  - 3. Store roll goods shall be stored on end.
  - 4. Distribute materials stored on other than the ground, so that their resultant weight does not exceed the design live load on the deck (normally 20 lbs. per square foot on roofs and 40 lbs. per square foot on floors).



1.11 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Operational restrictions to mitigate odor and air quality problems with asphalt or adhesive fumes: Utilize smokeless asphalt heating kettles.

1.12 WARRANTY

- A. The warranty provisions and number of years for the warrantee required by this article shall take precedence over the standard provisions in the GENERAL CONDITIONS.
- B. Special Warranty: Manufacturer, bonded warranty without monetary limitation, in which roof manufacturer agree to repair or replace components of roofing system that fail in materials or workmanship within the specified warranty period. Failure includes roof leaks, and materials and adhesion failure due to wind conditions
  - 1. Special warranty includes roofing membranes and base flashings, roofing accessories, roof insulation, fasteners, cover boards, substrate boards, sheet metal flashing, and other components of the roofing system.
  - 2. Warranty Period: Fifteen years from the Project Acceptance Date.
  - 3. Wind Conditions: Cover peak wind speeds up to 80 MPH as defined by the latest adopted editions of the Building Code.
  - 4. Warranty shall state the Manufacturer's acceptance that the roof was installed in accordance with the contract requirements and that the State's personnel were properly instructed in the maintenance procedures.
  - 5. In the event of a failure, Manufacturer shall mutually agree and determine roof system failures and remedies.
- C. Special Project Warranty: Submit Contractor's bonded warranty, covering work of this section, including all components of roof system such as roofing membrane, base flashing, roofing accessories, roof insulation, fasteners, cover boards, substrate boards, and sheet metal flashing for the following warranty period and conditions:

1. Warranty Period: Three years from the Project Acceptance Date.
  2. Warranty shall cover repairs or replacement of damages to the building and its finishes due to leaks.
- D. Warranty Roof Inspections: Conduct a yearly inspection with the Owner's representative just prior to the first, third, fifth, tenth and fifteenth year anniversary of the Project Acceptance Date. The purpose of the inspections are to identify and correct deficiencies in all components of the roofing, fluid applied waterproofing, and flashing system.

## PART 2 - PRODUCTS

### 2.01 SBS-MODIFIED ASPHALT-SHEET MATERIALS

- A. Roofing Membrane Sheet: ASTM D 4601, Type I, glass-fiber-reinforced, SBS-modified asphalt sheet; smooth surfaced; suitable for application method specified.
1. Weight: 30.7 lb/100 sq. ft.
- B. Roofing Membrane Cap Sheet: ASTM D 5147, glass-fiber-reinforced, fire-rated, SBS-modified asphalt sheet; granular surfaced; suitable for application method specified, and as follows:
1. Granule Color: Tan.
  2. Weight: 102 lb./100 sq. ft.

### 2.02 BASE-SHEET MATERIALS

- A. Base Sheet: ASTM D 4601, Type I or II, SBS-modified asphalt-impregnated and -coated sheet, with glass-fiber-reinforcing mat, dusted with fine mineral surfacing on both sides.
1. Weight: 75 lb/100 sq. ft. 3.7kg/sq. m, minimum.

### 2.03 BASE FLASHING SHEET MATERIALS

- A. Flashing Sheet: ASTM D 4601, Type II, glass-fiber-reinforced, smooth surfaced, suitable for application method specified, and ASTM D 5147, glass-fiber-reinforced, SBS-modified asphalt sheet; granular surfaced; suitable for application method specified, and as follows:
1. Granule Color: Match roofing cap sheet.

### 2.04 AUXILIARY ROOFING MEMBRANE MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing membrane.
- B. Asphalt Primer: ASTM D 41.
- C. Roofing Asphalt: ASTM D 312, Type III or IV as recommended by roofing system manufacturer for application.
- D. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.
- E. Mastic Sealant: Polyisobutylene, plain or modified bitumen, nonhardening, nonmigrating, non-skinning and nondrying.
- F. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roofing membrane components to substrate, tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.
- G. Metal Flashing Sheet: Metal flashing sheet is specified in Section 07600 - FLASHING AND SHEET METAL.
- H. Roofing Granules: Match roofing cap sheet.
- I. Miscellaneous Accessories: Provide miscellaneous accessories recommended by roofing system manufacturer.

#### 2.05 ROOF INSULATION

- A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.
- B. Expanded Molded Polystyrene Insulation: ASTM C 578 Type IX, 1.5-lb/cu. ft. minimum density, integrally termite treated.
- C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/2 inch per 12 inches, unless otherwise indicated.
- D. Provide preformed insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

#### 2.06 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

- B. Asphalt Primer: ASTM D 41.
- C. Roofing Asphalt: ASTM D 312, Type III or IV as recommended by roofing system manufacturer for application.
- D. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/2 inch thick.
  - 1. Product: Subject to compliance with requirements, provided "Dens-Deck" by Georgia-Pacific Corporation.
- E. Substrate Joint Tape: 6- or 8-inch-150- or 200-mm-wide, coated, glass-fiber joint tape.

### PART 3 - EXECUTION

#### 3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
  - 1. Verify that roof openings and penetrations are in place and set and braced.
  - 2. Verify that curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
  - 3. Verify that roof construction and surface meets the requirements of the roofing manufacturer.
  - 4. Verify that concrete compounds that will impair adhesion of roofing components to roof deck have been removed.
  - 5. Verify that concrete substrate is visibly dry and free of moisture. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
    - a. Test for moisture by pouring 1 pint of hot roofing asphalt on deck at start of each day's work and at start of each roof area or plane. Do not proceed with roofing work if test sample foams or can be easily and cleanly stripped after cooling.
  - 6. Proceed with installation only after unsatisfactory conditions have been corrected.

#### 3.02 INSULATION INSTALLATION

- A. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- B. Install tapered insulation under area of roofing to conform to slopes indicated.
- C. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
  - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- D. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness exceeds NRCA recommendations for a single layer or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches 150 mm in each direction.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install tapered edge strips at perimeter edges of roof that do not terminate at vertical surfaces.
- G. Adhered Insulation: Install each layer of insulation and adhere to substrate as follows:
  - 1. Set each layer of insulation in a solid mopping of hot roofing asphalt.
  - 2. Install subsequent layers of insulation in a solid mopping of hot roofing asphalt.
- H. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Stagger joints from joints in insulation below a minimum of 6 inches 150 mm in each direction. Loosely butt cover boards together and fasten to roof deck. Tape joints if required by roofing system manufacturer.
  - 1. Apply hot roofing asphalt to underside and immediately bond cover board to substrate.

3.03 ROOFING MEMBRANE INSTALLATION, GENERAL

- A. Install roofing membrane system according to roofing system manufacturer's written instructions and applicable recommendations of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."

1. Install roofing system according to specification-plate classifications in the NRCA Roofing and Waterproofing Manual and requirements of this Section.
- B. Start installation of roofing membrane in presence of roofing system manufacturer's technical personnel.
- C. Cooperate with testing and inspecting agencies engaged or required to perform services for installing roofing system.
- D. Coordinate installing roofing system so insulation and other components of the roofing membrane system not permanently exposed are not subjected to precipitation or left uncovered at the end of the workday or when rain is forecast.
  1. Provide tie-offs at end of each day's work to cover exposed roofing membrane sheets and insulation with a course of coated felt set in roofing cement or hot roofing asphalt with joints and edges sealed.
  2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system.
  3. Remove and discard temporary seals before beginning work on adjoining roofing.
- E. Asphalt Heating: Do not raise roofing asphalt temperature above equiviscous temperature range more than one hour before time of application. Do not exceed roofing asphalt manufacturer's recommended temperature limits during roofing asphalt heating. Do not heat roofing asphalt within 25 deg F of flash point. Discard roofing asphalt maintained at a temperature exceeding finished blowing temperature for more than 4 hours.
- F. Substrate-Joint Penetrations: Prevent roofing asphalt from penetrating substrate joints, entering building, or damaging roofing system components or adjacent building construction.

### 3.04 BASE-SHEET INSTALLATION

- A. Install lapped base sheet course, extending sheet over and terminating beyond curb and edge conditions. Attach base sheet as follows:
  1. Adhere to substrate in a solid mopping of hot roofing asphalt.

### 3.05 MEMBRANE APPLICATION - GENERAL

- A. Unroll roofing membrane sheets and allow them to relax for minimum time period required by manufacturer.
- B. Laps: Accurately align roofing membrane sheets, without stretching, and maintain uniform side and end laps. Stagger end laps. Completely bond and seal laps, leaving no voids.
  - 1. Repair tears and voids in laps and lapped seams not completely sealed.
  - 2. Apply roofing granules to cover exuded bead at laps while bead is hot.
- C. Install roofing membrane sheets so side and end laps shed water.

3.06 SBS-MODIFIED BITUMINOUS MEMBRANE INSTALLATION

- A. Install modified bituminous roofing membrane sheet and cap sheet according to roofing manufacturer's written instructions, starting at low point of roofing system. Extend roofing membrane sheets over and terminate beyond curb and edge conditions, installing as follows:
  - 1. Adhere to substrate in a solid mopping of hot roofing asphalt applied at not less than 425 deg F.

3.07 FLASHING AND STRIPPING INSTALLATION

- A. Install base flashing over sloping and vertical surfaces, at roof edges, and at penetrations through roof, and secure to substrates according to roofing system manufacturer's written instructions and as follows:
  - 1. Prime substrates with asphalt primer if required by roofing system manufacturer.
  - 2. Backer Sheet Application: Install backer sheet and adhere to substrate in a solid mopping of hot roofing asphalt.
  - 3. Flashing Sheet Application: Adhere flashing sheet to substrate in asphalt roofing cement; apply cement at rate required by roofing system manufacturer.
- B. Extend base flashing up vertical surfaces a minimum of 8 inches above roofing membrane where applicable and 4 inches onto field of roofing membrane.
- C. Mechanically fasten top of base flashing securely at terminations and perimeter of roofing.

1. Seal top termination of base flashing with a strip of glass-fiber fabric set in asphalt roofing cement.
  2. Anchor base flashing to the parapet with a one-wide by 1/8-inch thick s.s. continuous termination bar as indicated on the drawings.
- D. Install roofing membrane cap-sheet stripping where metal flanges and edgings are set on membrane roofing according to roofing system manufacturer's written instructions.
- E. Incorporated Items:
1. Blocking: Install as required and shall be secured to the deck with appropriate fasteners spaced at maximum 48 inches on center.
  2. Metal Edging and Incorporated Flashing: Set in a full bed of flashing cement on top of the modified bitumen interply membrane not including the cap sheet. Overlap (nested not cut) edging at least 5 inches at joints, with a flexible non-hardening sealant compatible with the flashing cement and modified bitumen, placed between the two layers of metal in such manner that metal does not touch metal anywhere. Securely fasten edging flange to edge nailing strips using large headed-nails at least 1-1/2 inches long. Nail at 3 inches on-center and stagger on either side of flange centerline. Double nail laps. Prime flange and flash with one strip of the modified bitumen inter-ply sheet 6 inch wider than the flange width torched-on onto the substrate. Torch-on, mop or adhere cap sheet with the edge 1/4 inch away from the outside corner of the metal edging. Apply a continuous bead of flashing cement and press into this edge. Anchor the face flange of the metal edging as shown in the drawings.
  3. Install metal penetration flashing in accordance with roofing system manufacturer's written instructions.

3.08 FIELD QUALITY CONTROL - INSPECTIONS

A. Progress Roof Inspections:

1. Contractor, roofing installer, Owner's representative and roofing system manufacturer's technical personnel shall inspect the roof surfaces at the following times.
  - a. At the actual start of the roofing installation.
  - b. Periodically during the roofing installation as recommended by the Owner's representative.



- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Owner's representative and to roofing manufacturer as needed to meet warranty requirement.
  - 1. Notify the Owner's representative 48 hours in advance of date and time of inspection.
  - 2. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.
  - 3. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.09 FIELD QUALITY CONTROL - TESTING

- A. Testing Agency: At his discretion, the Owner's representative may at its own expense engage a qualified independent testing and inspecting agency to perform roof tests and inspections and to prepare test reports.
- B. Test Cuts: Test specimens will be removed to evaluate problems observed during quality-assurance inspections of roofing membrane as follows:
  - 1. Approximate quantities of components within roofing membrane will be determined according to ASTM D 3617.
  - 2. Test specimens will be examined for interply voids according to ASTM D 3617 and to comply with criteria established in Appendix 3 of ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing."
- C. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to the Owner's representative.
  - 1. Notify the Owner's representative 48 hours in advance of date and time of inspection.
- D. Repair or remove and replace components of roofing system where test results or inspections indicate that they do not comply with specified requirements.

- E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to the Owner's representative.
- B. Cleaning
  - 1. Clean coating overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.
  - 2. Remove debris from roofing work from the premises and dispose at the end of each working day and upon completion of the work to the satisfaction of the University. Leave roof in good, clean condition.
  - 3. Bitumen, modified and otherwise, shall be removed completely from all surfaces other than the roofing, especially those to which sealants must be bonded and/or metal flashings which are to be painted. Cleaned out gutters, downspouts, roof drains, and scuppers and remove all blockages prior to acceptance of the project.

END OF SECTION

## SECTION 07600 - FLASHING AND SHEET METAL

### PART 1 - GENERAL

#### 1.01 DESCRIPTION OF WORK

- A. Work Included: Provide all labor, materials and equipment necessary to install flashing, counterflashing, metal edging, and other related work as shown on drawings and as specified herein.
- B. Related Work Described Elsewhere:
  - 1. Coordinate installation of sheet metal work with Section 07550 - MODIFIED BITUMINOUS MEMBRANE ROOFING.
  - 2. Sealant for surface mounted flashings and elsewhere required to ensure watertight joints is specified under Section 07920 - SEALANTS.

#### 1.02 SUBMITTALS

- A. Shop drawings: Submit shop drawings for all the similar and unusual conditions necessary to fabricate the flashing and sheet metal work. Show all fasteners and relationship to adjacent work. No fabrication will be permitted before approval is secured.

#### 1.03 STORAGE AND HANDLING

All materials shall be stored in such a manner as to afford adequate protection. Damaged materials shall not be used and shall be removed from the site.

#### 1.04 QUALITY ASSURANCE

- A. All sheet metal fabrications shall conform to State and local codes, SMACNA (latest edition) and industry standards.
- B. All roof penetrations shall be installed weathertight in such a manner to maintain integrity of the roofing.

#### 1.05 WARRANTY

The system must be included into the Modified Bituminous Membrane Roofing Manufacturer's 15-Year Special Warranty for the horizontal roof system and the Contractor's Project Warranty.

### PART 2 - PRODUCTS

#### 2.01 MATERIALS

- A. Stainless Steel Flashing, Counterflashing, and Metal Edging

(Except for Aluminum Fabrications): ASTM A167, minimum .025-inch type 304 with No. 4 finish.

- B. Lead Sheet for Vent Pipe Flashing: ASTM B 749, Grade B, copper-bearing sheet lead, minimum 2-1/2 pounds per square foot, unless indicated otherwise.
- C. Solder: 50 percent virgin lead and 50 percent pure block tin, conforming to ASTM B 32.
- D. Flux: Non-corrosive resin type.
- E. Neoprene Plastic Cement: As recommended by the roofing manufacturer under Section 07550 - MODIFIED BITUMINOUS MEMBRANE ROOFING.
- F. Nails and Fasteners: Use the same metal or a metal compatible with the item. Use stainless steel fasteners to fasten dissimilar metals.
- G. Asphaltic Roof Cement: ASTM D 4586, Type I for horizontal surfaces and Type II for vertical surfaces as recommended by the roofing manufacturer under Section 07550 - MODIFIED BITUMINOUS MEMBRANE ROOFING.
- H. Stainless Steel Vent Screen: 8 mesh, minimum 0.017 diameter wire unless indicated otherwise.
- I. Stainless Steel Clamp: As indicated for screwdriver adjustment.
- J. Bituminous Paint: Cold-applied asphalt mastic complying with SSPCPaint 12 but containing no asbestos fibers, or cold-applied asphalt emulsion complying with ASTM D 1187.

### PART 3 - EXECUTION

#### 3.01 INSTALLATION AND WORKMANSHIP

- A. Surface to which sheet metal is to be applied shall be even, smooth, sound, thoroughly clean and dry, and free from defects that might affect the application. Report any unsatisfactory surfaces to the University. In the absence of such a report, the Contractor shall be held responsible for the finished product.
- B. All accessories or other items essential for the completeness of the sheet metal installation, though not specifically indicated on the drawings or specified, shall be provided. All such items unless otherwise indicated on the drawings or specified, shall be of the same kind of materials as the item to be applied. Nails, screws, and bolts shall be of the type best suited for the purpose

intended and shall be of a composition that is compatible with the metal to which it will contact.

- C. Except as otherwise indicated on the drawings or specified, the workmanship of sheet metal work, method of forming joints, anchoring, cleating, provisions for expansion, etc., shall conform to the standards details and recommendations of the Sheet Metal and Air Conditioning Contractors National Association's "Architectural Sheet Metal Manual", Copper and Brass Research association. All flashings shall be stainless steel unless indicated otherwise.
- D. All sheet metal work shall be watertight and wind-tight in compliance with the purpose intended for the items indicated on the drawings or specified herein.
- E. Cleating: Cleats for sheet metal work shall be provided where required, continuous unless otherwise indicated on the drawings. Cleats shall be the same material and weight as the metal being installed. Cleats for soldered seams shall be pretinned. Hook cleating with 3/4-inch minimum hem on concealed side of flashing.
- F. Vents Thru Roof (VTR): Provide vent pipe flashing with flashing turned down into vent as indicated. Provide stainless steel screen with clamp over all vents.
- G. Protection from Contact of Dissimilar Materials: Surfaces in contact with dissimilar metal shall be painted with heavy-bodied bituminous paint, or shall be separated by means of moisture-proof building felts.

### 3.02 PROTECTION

Protect all sheet metal work until final acceptance of the work.

### 3.03 CLEAN-UP

- A. Clean all exposed sheet metal work at completion of installation. Grease and oil films, handling marks, contamination from steel wool, fittings and drilling debris shall be removed, and the work scrubbed clean. All exposed metal surfaces shall be free of dents, creases, waves, scratch marks, and solder or weld marks.
- B. At completion of the work, clean up and remove all rubbish and debris from the premises which resulted from this work.

END OF SECTION

Gravel  
 REMOVE AND DISPOSE OF EXIST. CONC. CURB

CUT, REMOVE AND DISPOSE OF  
 CONC. CURB AND A.C. PAVEMENT  
 TO ACCOMMODATE NEW PAVEMENT,  
 SEE SWG. C608

REMOVE AND DISPOSE OF EXIST. CONC STAIRS

CUT AND REMOVE EXIST. CONC STAIRS  
 PROVIDE TEMPORARY BYPASS PIPING  
 TO SERVICE THE PRIMARY CLARIFIER  
 AIR LIFT PUMPS AND AIR DEGRITTER  
 AERATION SYSTEM

REMOVE AND DISPOSE  
 OF EXISTING UST. SEE  
 SPEC. SECTION 02115  
 FOR REMOVAL PROCEDURES

REMOVE AND SALVAGE EXISTING  
 EMERGENCY GENERATOR

# CONDITIONS & DEMOLITION PLAN-1

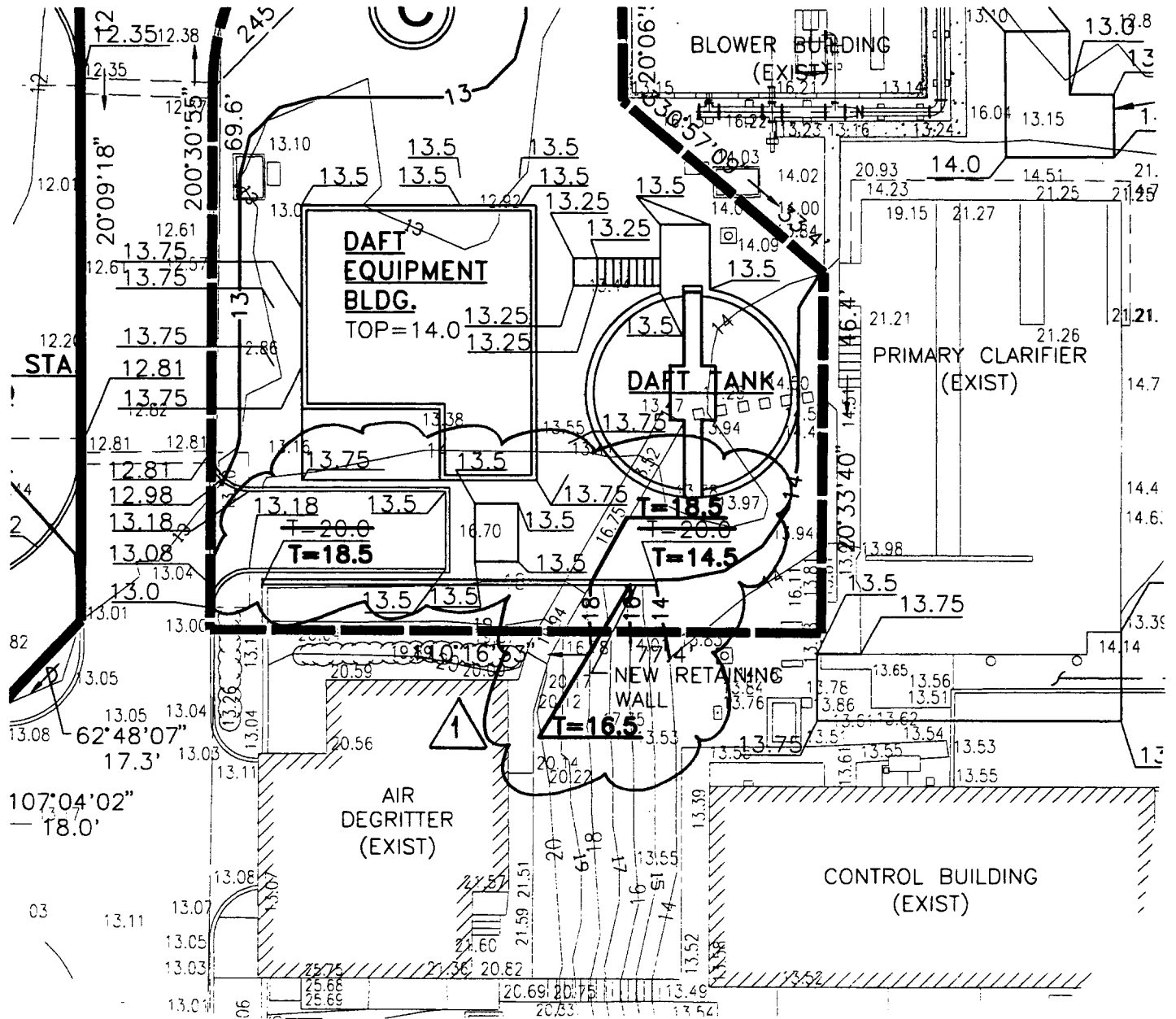
SCALE 1" = 20'

NARRATIVE OF REVISION: **ADDED CALLOUTS**

WAIMANALO WWTP IMPROVEMENTS  
 DLNR JOB NO. J32C030A

**△** ADDENDUM NO. 1  
 FIGURE NO. 1

DWG. C602 SH. 21 OF 29



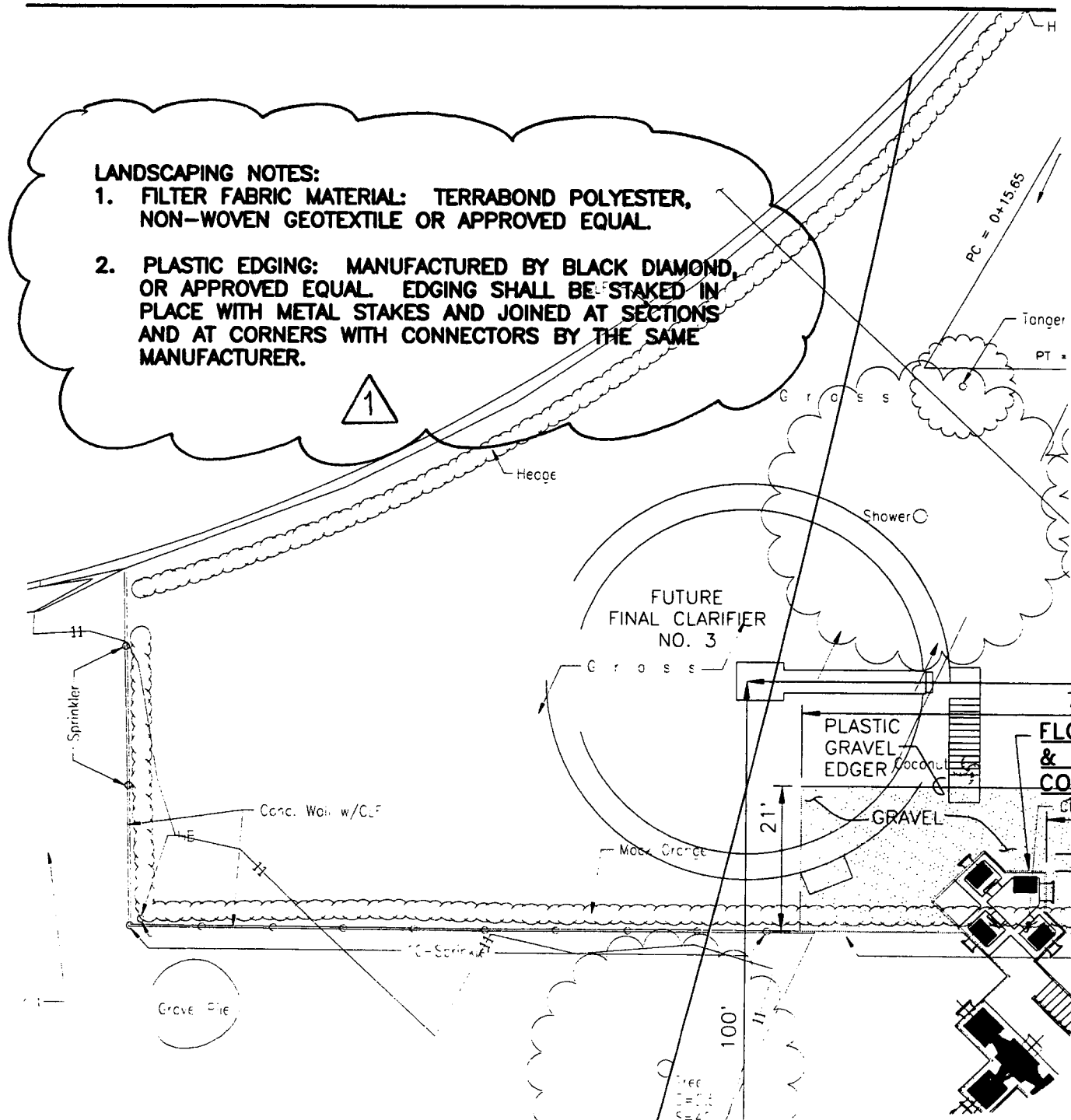
NARRATIVE OF REVISION: REVISED ELEVATIONS AT NEW RETAINING WALL

WAIMANALO WWTP IMPROVEMENTS  
DLNR JOB NO. J32C030A

ADDENDUM NO. 1  
FIGURE NO. 2

DWG. C605 SHT. 24 OF 291

MATCH LINE  
SEE DWG. NO. C609



NARRATIVE OF REVISION: ADDED LANDSCAPING NOTES

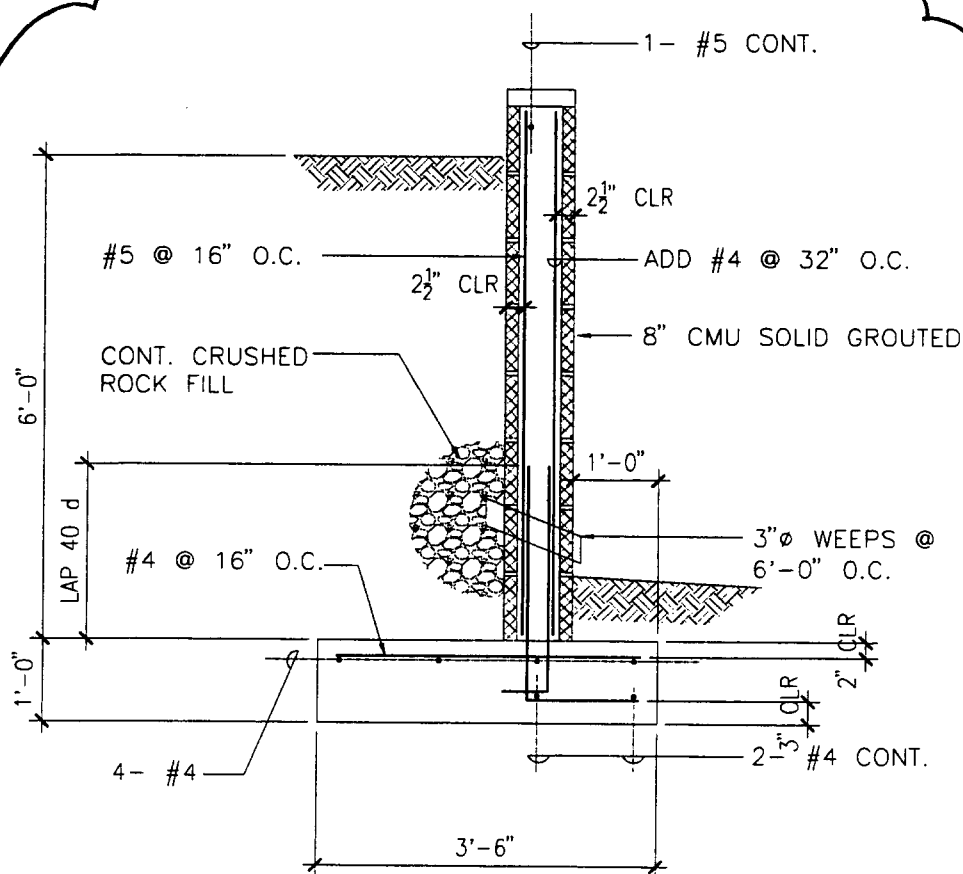
WAIMANALO WWTP IMPROVEMENTS  
DLNR JOB NO. J32C030A

DWG. C608 SHT. 27 OF 291

△ 1 ADDENDUM NO. 1  
FIGURE NO. 3



DWG. C611 SHT. 30 OF 291



1

## RETAINING WALL SECTION

SC: 1/2" = 1'-0"

NARRATIVE OF REVISION: ADDED RETAINING WALL DETAIL

WAIMANALO WWTP IMPROVEMENTS  
DLNR JOB NO. J32C030A

ADDENDUM NO. 1  
FIGURE NO. 5

DWG. 57 SHT. 70 OF 291



| ANOXIC/AEROBIC BASIN           |   |                |                                     |
|--------------------------------|---|----------------|-------------------------------------|
| INTERNAL RECYCLE PUMP          | PUMPS ARE MANUALLY OPERATED.            | 11317<br>11317 | PMP 01A<br>PMP 01A                  |
| BLOWER BUILDING                |   |                |                                     |
| ANOXIC/AEROBIC BLOWER BUILDING | BLOWERS ARE MANUALLY OPERATED.          | 11373          | BLR 01B                             |
| FINAL CLARIFIERS (FC)          |   |                |                                     |
| FINAL CLARIFIER DRIVES         | CLARIFIER DRIVES ARE MANUALLY OPERATED. | 11339<br>11339 | FC 01C<br>FC 02C<br>FC 03C (FUTURE) |

PROPELLER 2,700 GPM, 2.5' TDH, 15 HP, VFD, 460/60/3  
PROPELLER 2,700 GPM, 2.5' TDH, 15 HP, VFD, 460/60/3

SINGLE STAGE MAX AIR FLOW: 1,514 ACFM @8.74 PSIG (92 F, 81% RH)  
MIN AIR FLOW: 681 ACFM @8.74 PSIG (92 F, 81% RH)  
MOTOR: 75 HP, 3,600 RPM, 460/60/3  
CONTROL PANEL: 120/60/1, 30 AMP

MULTI STAGE 1514 ACFM @8.74 PSIG, 3,600 RPM, 100 HP, 460/60

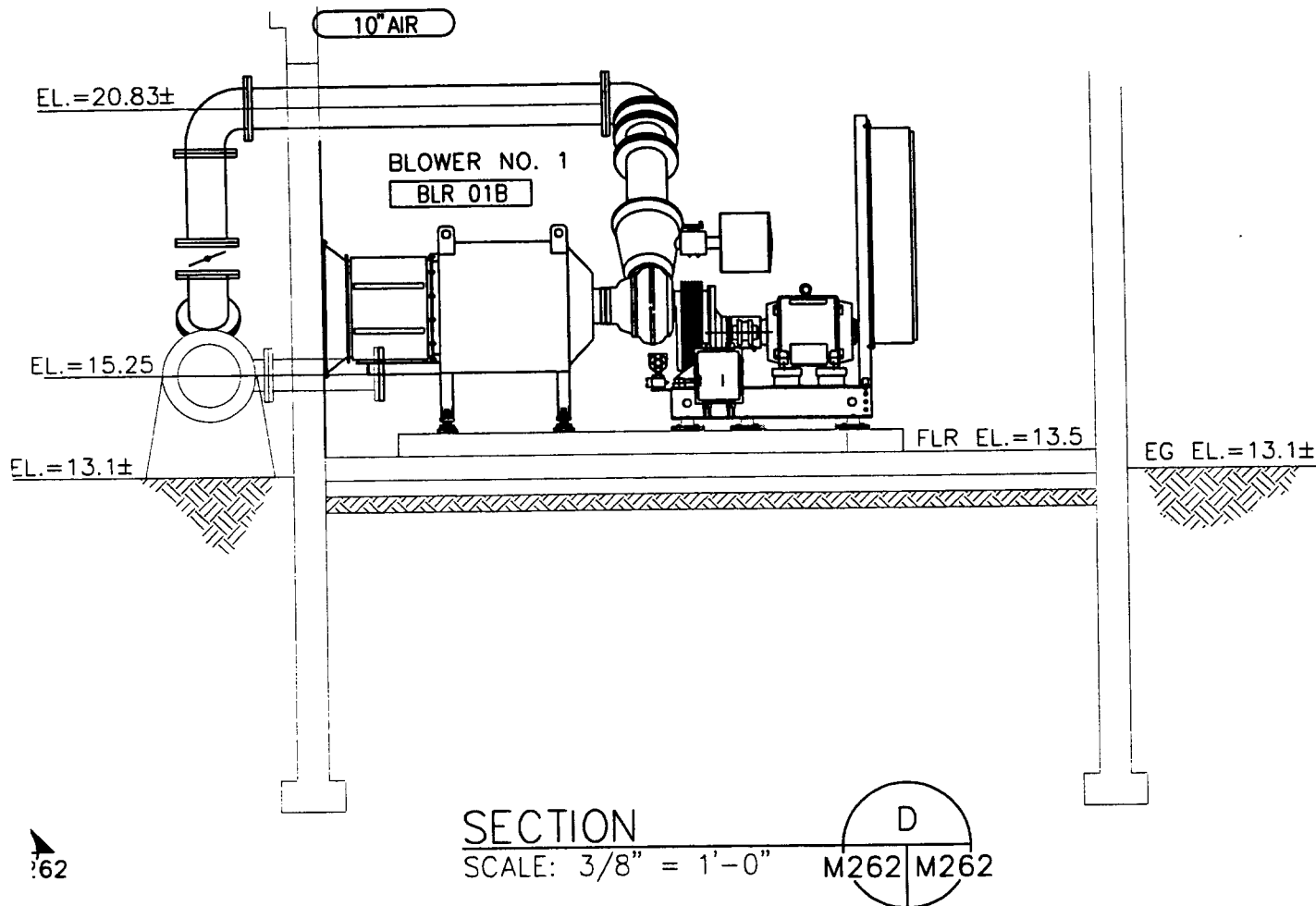
SPUR GEAR 9,000 FT-LBS TORQUE, 1/2 HP, 460/60/3  
SPUR GEAR 9,000 FT-LBS TORQUE, 1/2 HP, 460/60/3  
SPUR GEAR 9,000 FT-LBS TORQUE, 1/2 HP, 460/60/3

NARRATIVE OF REVISION: REVISED SINGLE-STAGE BLOWER MOTOR HP FROM 150HP TO 75 HP.

WAIMANALO WWTP IMPROVEMENTS  
DLNR JOB NO. J32C030A

1 ADDENDUM NO. 1  
FIGURE NO. 7

DWG. N701 SHT. 136 OF 291



**NOTES:**

1. BLOWER MANUFACTURER SHALL BE RESPONSIBLE FOR FURNISHING FLEXIBLE CONNECTORS (RUBBER EXPANSION JOINT). ELASTOMERS SHALL BE SUITABLE FOR HIGH AIR TEMPERATURES AND CORROSIVE ACID ATTACK.
2. PIPE COUPLING FOR STAINLESS STEEL AIR PIPE SHALL BE FABRICATED FROM TYPE 316 SS MATERIAL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING THE INLET FILTER-SILENCER UNITS FOR THE BLOWERS. UNITS SHALL BE COMPACT AND EQUIPPED WITH A WEATHERHOOD. ALL COMPONENTS SHALL BE 316 SS OR FIELD COATED WITH TWO COATS OF HIGH-BUILD EPOXY COATING (5 MILS EACH COAT)
4. FITTINGS AND VALVES SHALL BE SAME MATERIAL AS THE PIPING MATERIAL (TYPE 316 STAINLESS STEEL).

NARRATIVE OF REVISION:

ADDED NOTE #4

WAIMANALO WWTP IMPROVEMENTS  
DLNR JOB NO. J32C030A

△ ADDENDUM NO. 1  
FIGURE NO. 8

DWG. M262 SHT. 185 OF 291

FOR INFORMATION ONLY.

## Pre-Bid Meeting Minutes

### Waimanalo Wastewater Treatment Plant Improvements DLNR JOB NO. J32CO30A

Date: April 21, 2005      Commenced: 9:00 am  
Location: DLNR, CWRM Conference Room  
1151 Punchbowl Street, Room 221

Meeting was opened by the Project Engineer, Gordon Chong, who stated the following:

- A. Qualification Package submittals are due by April 25, 2005, (Monday)
- B. An addendum will be issued next week.
- C. Allowance provided in the proposal should be sufficient to undertake the required HECO work.
- D. We will be adding in two items in the proposal:
  - a. Systems integrator for the SCADA system
  - b. Field office for Construction Manager
- E. A delay will be added in between the completion of Phase I which includes roughly 90% of the construction work and the biological treatment process, and the start of Phase II (Equalization Basin).

Meeting was Opened up for Questions:

Q1: What is an acceptable time frame for award and notice to proceed (NTP) dates?

A1: We will verify internally and issue a revised time frame in the addendum. It will probably be 6 months or less. Will address in addendum.

Q2: Are there any problems anticipated with the dynamic breaking on the motors in relation to the VFDs?

A2: None anticipated. Will verify and address in addendum.

Q3: Can we submit alternative products for approval?

A3: We will entertain product alternatives as part of the qualifications package that is due Monday, April 25, 2005.

Q4: Will the new SCADA system need to be of the same brand as the existing? Do we need to interface with the existing system?

A4: What is currently supervised by the existing Barrington system will remain. New processes will be on PLCs.

Q5: Detailed Specification Section 03200 – Concrete Reinforcement, Item 3.03 Schedules, paragraph A: Unfinished rebar limits?

A5: Will identify limits in addendum.

Q6: Detailed Specification Section 03200 – Concrete Reinforcement, Item 3.03 Schedules, paragraph B: Can we substitute in epoxy coated rebar in lieu of galvanized rebar?

A6: Will re-evaluate and notify any changes in the addendum.

# PRE-BID CONFERENCE

Job No. J00CO30A, Waimanalo WWTP Improvements

Date: April 21, 2005

Time: 9:00 am at CWRM Conference Room

| PRINT NAME          | Company                | Phone         | Fax           | E-Mail                         |
|---------------------|------------------------|---------------|---------------|--------------------------------|
| 1 Jhoni Kahaleha    | Demelbros Construction | 877-7590      | 877-7590 x 51 | jh2267@hotmail.com             |
| 2 Dennis Demello    | "                      | "             | "             | cdell114@verizon.net           |
| 3 Kevin Stora       | HAWAIIAN DEVELOPMENT   | 8735-3363     | 735-3232      | kshiola@hdc.com                |
| 4 Wes Chittaka      | "                      | 735-3246      | "             | WChittaka@hdc.com              |
| 5 Kenneth Tenzumoto | "                      | 735-3211      | "             | Ktenzumoto@hdc.com             |
| 6 Derek Mukai       | CP1                    | 531-4257      |               | dmukai@cp-hawaii.com           |
| 7 Ryan Yamachi      | Environet              | 833-2225      | 833-2231      | rsy@hawaii-rr.com              |
| 8 Hiram M. Young    | ENGINEERING DU, PLNR   | 587-0260      | 587-0283      | HIRAM.M.YOUNG@HAWAIIAN.BOV     |
| 9 William Wanner    | MAGE Pacific - CM      | 521-3057      | 524-8677      | bill.wanner@m-c-acc.com        |
| 10 Nick Alday       | Miyeshiro & Assoc.     | 536-8317      | 536-8768      | mai@lawa.net                   |
| 11 JONG NAMGUNG     | Mitsunaga & Assoc, Inc | 945-7821 (23) | 946-2573      | Mitsunaga-street@hawaii-rr.com |
| 12 Steven Sakai     | RONALD HO & ASSOC.     | 941-0517      | 945-2646      | postmaster@rnshe.com           |
| 13 STEVEN TOGAKI    | ASSOC. STEEL           | 682-5586      | 682-7392      | stevetogaki@rci-group.com      |
| 14 RALPH RAYMOND    | RCI                    | 838-1360      | 838-7639      | rraymond@rci-group.com         |
| 15                  |                        |               |               |                                |
| 16                  |                        |               |               |                                |
| 17                  |                        |               |               |                                |
| 18                  |                        |               |               |                                |
| 19                  |                        |               |               |                                |
| 20                  |                        |               |               |                                |